

IN THE CLAIMS:

1 1. (CURRENTLY AMENDED) A network device for use in a computer network carry-
2 ing network traffic, the network device comprising:
3 a traffic scheduler having one or more resources for use in forwarding network
4 traffic received at the device at different rates;
5 a classification engine configured to identify received network traffic based upon
6 predefined criteria; and
7 a resource reservation engine in communicating relationship with the traffic
8 scheduler and the classification engine,
9 wherein, in response to a first request to reserve resources for a given traffic flow
10 from a destination entity, the resource reservation engine allocates one or more resources
11 to the given traffic flow, but does not make the one or more allocated resources available
12 to the given traffic flow until receiving a ~~message~~ second request to reserve the one or
13 more resources from the destination entity indicating that ~~a~~ the destination entity accepts
14 the traffic flow ~~transmitted a response message to a source entity.~~

1 2-4. CANCELLED)

1 5. (CURRENTLY AMENDED) The network device of claim 2 1 wherein:
2 the resource reservation engine utilizes a modified Resource reSerVation Protocol
3 (RSVP) specification standard, and
4 the first and second reservation requests are modified RSVP Reservation (Resv)
5 messages.

1 6. (PREVIOUSLY PRESENTED) The network device of claim 5 wherein:

2 the first and second modified Resv messages each include a two phase reservation
3 flag,
4 in the first modified Resv message, the two phase reservation flag is asserted, and
5 in the second modified Resv message, the two phase reservation flag is deas-
6 serted.

1 7. (CANCELLED)

1 8. (CURRENTLY AMENDED) The network device of claim 2 1 wherein packets corre-
2 sponding to the given traffic flow are forwarded by the device in a best efforts manner
3 after receipt of the first request and prior to receipt of the second request.

1 9. (PREVIOUSLY PRESENTED) The network device of claim 8 wherein packets corre-
2 sponding to the given traffic flow are forwarded with the one or more allocated resources
3 after receipt of the second request.

1 10. (CURRENTLY AMENDED) In a computer network having a plurality of entities
2 interconnected by a plurality of intermediate network devices having one or more re-
3 sources for use in forwarding network traffic, a method for providing end-to-end resource
4 reservations along a route between two or more entities, the method comprising the steps
5 of:

6 receiving a first resource reservation message at a given intermediate network de-
7 vice disposed along the network route, the first resource reservation message identifying
8 a traffic flow between the two or more entities and requesting a reservation of resources;

9 in response to receiving the first resource reservation message, allocating one or
10 more of the device's resources for use in forwarding network traffic between the two or
11 more entities; and

12 withholding the allocated resources from being applied to the traffic flow between
13 the two or more entities until the plurality of intermediate network devices receive a sec-

14 ond resource reservation message identifying the traffic flow indicating that one of the
15 two or more entities accepts the traffic flow~~a destination entity transmitted a response~~
16 ~~message to a source entity.~~

1 11. (CURRENTLY AMENDED) The method of claim 10 further comprising the step of:
2 ~~receiving a second resource reservation message for the traffic flow between the~~
3 ~~two or more entities; and~~
4 in response to receiving the second resource reservation message, making the al-
5 located resources available for use in forwarding the traffic flow between the two or more
6 entities.

1 12. (CANCELLED)

1 13. (PREVIOUSLY PRESENTED) The method of claim 11 wherein the first and second
2 resource reservation messages are modified Resource reSerVation Protocol (RSVP) Res-
3 ervation (Resv) messages.

1 14. (CANCELLED)

1 15. (PREVIOUSLY PRESENTED) The method of claim 11 wherein the steps of allocat-
2 ing resources, withholding resources and making allocated resources available are per-
3 formed at each intermediate network device disposed along the route between the two or
4 more entities.

1 16. (CURRENTLY AMENDED) A method for providing resource reservations along a
2 route through a computer network between two or more entities, the method comprising
3 the steps of:
4 generating a first resource reservation message by a destination entity identifying
5 a traffic flow and requesting a reservation of resources;

6 configuring the first resource reservation message to include a two phase reserva-
7 tion flag; and

8 asserting the two phase reservation flag so that resources within the network will
9 be allocated, but not made available to the identified traffic flow until the destination en-
10 tity accepts the traffic flow. ~~a destination entity transmits a response message to a source~~
11 ~~entity.~~

1 17. (CURRENTLY AMENDED) The method of claim 16 further comprising the steps
2 of:

3 generating a second resource reservation message by the destination entity identi-
4 fying the traffic flow;

5 configuring the second resource message to include a two phase reservation flag;
6 and

7 deasserting the two phase reservation flag so that the allocated resources are made
8 available for application to the identified traffic flow.

1 18. (CURRENTLY AMENDED) The network device of claim-2 1, further comprising:

2 a timer to measure a predetermined time period, wherein the resource reservation
3 engine discards the resources if the second reservation message is not received prior to
4 expiration of the predetermined time period.

1 19. (PREVIOUSLY PRESENTED) A router, comprising:

2 means for receiving a first resource reservation message, the first resource reser-
3 vation message identifying a traffic flow between two or more entities requesting a reser-
4 vation of resources;

5 means for allocating, in response to the first resource reservation message, one or
6 more of the router's resources for use in forwarding network traffic between the two or
7 more entities, but not making available the one or more router's resources to the identi-
8 fied traffic flow;

9 means for receiving a second resource reservation message; and
10 means for making available, in response to the second resource reservation mes-
11 sage, the one or more router's resources to the identified traffic flow.

1 20. (CURRENTLY AMENDED) A computer readable media, ~~comprising:~~
2 ~~the computer readable media~~ having information written thereon, the information having
3 instructions for execution on a processor for ~~the practice of a method~~ for operating a
4 router, the instructions for: ~~method having the steps of,~~
5 receiving a first resource reservation message, the first resource reservation mes-
6 sage identifying a traffic flow between two or more entities requesting a reservation of
7 resources;
8 allocating, in response to the first resource reservation message, one or more of
9 the router's resources for use in forwarding network traffic between the two or more enti-
10 ties, but not making available the one or more router's resources to the identified traffic
11 flow;
12 receiving a second resource reservation message ; and
13 making available, in response to the second resource reservation message, the one
14 or more router's resources to the identified traffic flow.

1 21. (PREVIOUSLY PRESENTED) A method for operating a router, comprising:
2 generating a first resource reservation message identifying a traffic flow for which
3 a resource reservation is requested along a network path between two entities; and
4 indicating by the first resource reservation message that resources within the net-
5 work are requested to be allocated, but not made available to the identified traffic flow.

1 22. (PREVIOUSLY PRESENTED) The method of claim 21 further comprising:
2 generating a second resource reservation message identifying the traffic flow; and
3 indicating by the second resource reservation message that the allocated resources
4 are to be made available for application to the identified traffic flow.

1 23. (PREVIOUSLY PRESENTED) The method of claim 22 further comprising:
2 discarding the resources upon expiration of a predetermined time period, if the
3 second reservation message is not received prior to expiration of the predetermined time
4 period.

1 24. (PREVIOUSLY PRESENTED) A router, comprising:
2 means for generating a first resource reservation message identifying a traffic
3 flow for which a resource reservation is requested along a network path between two en-
4 tities; and
5 means for indicating by the first resource reservation message that resources
6 within the network are requested to be allocated, but not made available to the identified
7 traffic flow.

1 25. (PREVIOUSLY PRESENTED) The router of claim 24 further comprising:
2 means for generating a second resource reservation message identifying the traffic
3 flow; and
4 means for indicating by the second resource reservation message that the allo-
5 cated resources are to be made available for application to the identified traffic flow.

1 26. (PREVIOUSLY PRESENTED) The router of claim 25 further comprising:
2 means for discarding the resources upon expiration of a predetermined time pe-
3 riod, if the second reservation message is not received prior to expiration of the prede-
4 termined time period.

1 27. (CURRENTLY AMENDED) A computer readable media, comprising:
2 the computer readable media having information written thereon, the information having
3 instructions for execution on a processor for the practice of a method for providing re-

4 source reservations along a route between two or more entities, the instructions for:
5 ~~method having the steps of,~~
6 generating a first resource reservation message identifying a traffic flow to re-
7 quest a reservation of resources in a network between two or more entities; and
8 indicating by the first resource reservation message that resources within the net-
9 work will be allocated, but not made available to the identified traffic flow.

1 28–39. (CANCELLED)

1 40. (CURRENTLY AMENDED) A method for operating a router, comprising:
2 receiving a first modified Resource reSerVation Protocol (RSVP) message trans-
3 mitted by a ~~source-destination~~ entity to a ~~destination-source~~ entity;
4 allocating resources between the source entity and the destination entity for a
5 Voice over Internet Protocol (VoIP) call, in response to the first modified RSVP mes-
6 sage, and not making the resources available;
7 receiving, as an indication of acceptance of the VoIP call by ~~after~~ the destination
8 entity ~~rings~~, a second RSVP message from the destination entity; and
9 making available the previously allocated resources for the VoIP call in response
10 to receiving the second RSVP message.

1 41. (CURRENTLY AMENDED) The method of claim 40, further comprising:
2 including in the first and second RSVP message a phase reservation flag, the first
3 RSVP message having an asserted phase reservation flag, the second RSVP message hav-
4 ing a deasserted phase reservation flag, and when the phase reservation flag is deasserted,
5 making available the resources that were previously allocated.

1 42. (CANCELLED)

1 43. (CURRENTLY AMENDED) A router, comprising:

2 means for receiving a first modified Resource reSerVation Protocol (RSVP) mes-
3 sage transmitted by a ~~source-destination~~ entity to a ~~destination-source~~ entity;

4 means for allocating resources between the source entity and the destination entity
5 for a Voice over Internet Protocol (VoIP) call, in response to the first modified RSVP
6 message, and not making the resources available;

7 means for receiving, as an indication of acceptance of the VoIP call by after-the
8 destination entity ~~rings~~, a second RSVP message from the destination entity; and

9 means for making available the previously allocated resources for the VoIP call in
10 response to receiving the second RSVP message.

1 44. (CURRENTLY AMENDED) The router of claim 43, wherein further compris-
2 ing: means for including in the second RSVP message a phase reservation flag, the first
3 RSVP message has an asserted phase reservation flag, the second RSVP message has a
4 deasserted phase reservation flag, and the means for making available is responsive to
5 when the phase-reservation flag is deasserted, making available the resources that were
6 allocated.

1 45-46. (CANCELLED)

1 47. (NEW) The network device of claim 1, wherein the traffic flow is a Voice over IP
2 (VoIP) call to the destination entity.

1 48. (NEW) The network device of claim 47, wherein that the destination entity accepts
2 the VoIP call in response to removal of a handset from a cradle of the destination entity.

1 49. (NEW) The network device of claim 47, wherein the destination entity accepts the
2 VoIP call in response by interaction with a Voice Over Internet Protocol (VoIP) applica-
3 tion on the destination entity.

1 50. (NEW) The network device of claim 1, wherein the first and the second requests to
2 reserve resources originate from the destination entity.

1 51. (NEW) The method of claim 10, wherein the traffic flow is a Voice over IP (VoIP)
2 call to the destination entity.

1 52. (NEW) The method of claim 51, wherein that the destination entity accepts the VoIP
2 call in response to removal of a handset from a cradle of the destination entity.

1 53. (NEW) The method of claim 51, wherein the destination entity accepts the VoIP call
2 in response by interaction with a Voice Over Internet Protocol (VoIP) application on the
3 destination entity.

1 54. (NEW) The method of claim 10, wherein the first and the second requests to reserve
2 resources originate from the destination entity.